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Corruption and Economic Development: A Comparative Analysis with Evidence from the Extended Solow Growth Model

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ABSTRACT

The impact of corruption on economic development diverges on two paths: whether it boosts the economy or acts as a hindrance to economic growth. This study is an effort to determine which of these paths corruption follows in both OECD and emerging Asian economies by using panel data from 1996-2020 for a total of 45 countries. In addition, it analyzes the impact of human capital and economic globalization on the economic growth of these countries. In this study, an extended Solow Growth Model is estimated by using the panel ARDL approach. The results indicate that corruption has a negative while human capital positively impacts economic growth in both regions. However, in the case of economic globalization, the impact is positive in OECD countries and proves insignificant for emerging Asian economies. These findings confirm that corruption acts as an obstacle to economic development; thus, this study suggests a need to enhance education and health, especially for emerging Asian economies.

KEYWORDS Corruption; Human Capital; Globalization; GDP per capita; Solow Growth Model; OECD; Emerging Asian Countries

INTRODUCTION

Traditionally, the concept of corruption has focused primarily on a set of illegal activities originating from bribery, embezzlement, and nepotism. With time, the scope of its definitions and consequences has broadened. The World Bank defines corruption as "the abuse of public office for private gain."

The detrimental effects of corruption on a state's economic development are widely acknowledged in the literature on economics. Numerous studies find that corruption has played a significant role in eroding economic growth by reducing per capita GDP by way of lowering the productivity of public investment and government revenues(Haque & Kneller).The degree of erosion varies in developed and developing countries; however, the consequences remain the same (Shleifer & Vishny, 1993). These findings are reflected in the strategies of multinational organizations such as the World Bank and the OECD, among others. One of the most well-renowned instances is the OECD Convention on Bribery of Foreign Public Officials in International Business (Aidt, 2003; Egger, 2005).

"Grease in the wheel" or an uncontrollable "cancer"? As (Wei, 2001) states, on several occasions, it has been debated if corruption hinders economic growth or acts as an instrument in development. Corruption, which is a symptom of weak institutions, paves the road to increasing income inequalities, undermining the effectiveness of social welfare programs, inefficient resource allocations, enhancing inflation, and ultimately resulting in lower levels of human development (Lemke, 2014). Stakeholders tend to avoid such economies, which leads to a decrease in foreign investments and external business intervention.

Furthermore, corruption tends to circumvent regulations and tax payments. Tax fraud is higher in developing countries, which leads to a decrease in revenue collection, thereby negatively affecting economic development. In short, corruption "sands" the wheels of development and gives rise to the complexities in economic transitions. However, the dissenting voices hold that

corruption fosters economic development, thereby "greasing" the wheels of economic growth. This theory highlights the ease of doing business, the level of entrepreneurship, market capitalization, and buffers for unemployment in countries with high rates of corruption at the cost of bribery. Furthermore, it argues that corruption provides the government with the opportunity to extract more rent (Caselli & Michaels, 2013). Studies find that corruption aids firms in bypassing government regulations, allowing them to grow (Absalyamova et al., 2016; Jiang & Nie, 2014).

Globalization brings benefits to developing countries and economies which are in transition. However, embracing globalization can also bring new risks to developing countries. For instance, the reversal of capital flows, such as a recall of loans by international banks, can initiate or at least contribute to currency crises such as those in Asia. The IMF, the World Bank, and the regional development banks promote economic growth in the member countries and channel the benefits of globalization to developing countries. Research in the mid-1990s showed that corruption was a hindrance to economic growth. A more recent study showed that more corrupt governments receive fewer benefits from globalization.(Wei, 2001)

One of the greatest benefits of globalization is foreign direct investment, especially in the case of developing countries, for which it is a source of scarce capital and crucial for the transfer of technological advancement. Economic research has confirmed the positive and quantitatively important role that foreign direct investment plays in promoting the economic development of the recipient countries. A predictable and transparent business and investment landscape is key to the security of capital and other resources.

Corruption, however, is a major hurdle to the progress of developing countries (Groşanu et al., 2015). For international investors, bribes serve as an additional tax. Therefore, eradicating theft and fraud from public and commercial transactions yields tangible benefits for all concerned, as it has been linked to better firm valuations, lower capital costs and bond yields, better equity returns, increased foreign direct investment, along with higher growth rates and improved standards of living.(Wei, 2001)

In addition, the quality of human capital, which is a significant determinant of growth, deteriorates due to the presence of corruption (Mubarik et al., 2021). For instance, it undermines the quantity and quality of education and health services, thereby decreasing a country's potential human capital (Kazmi, Ali, & Ali, 2017).

The debates, as mentioned earlier, lead to crucial implications for economic development regarding the challenges faced by states. This paper aims to understand the impact of corruption on economic development by using the Solow Growth Model. In addition, it draws a comparison between emerging and developed nations in the context of corruption, ultimately answering whether corruption acts as grease to the economy or hinders its growth. Lastly, it analyses the role of Human Capital and economic globalization in the economic development of both developed and emerging economies (Levy, 2007).

Corruption is a highly complex concept that is often viewed subjectively, inevitably making it difficult to define. In recent years, there has been increasing interest from policymakers and NGOs alike to identify the causes and consequences of corruption, yet existing literature does not have a consensus on its definition. The concept of corruption is diversified across cultures and countries- these differences are especially distinguishable between developing and developed countries.

Generally, the term corruption is used to label a varied set of illegal activities ranging from extortion to bribery to embezzlement. The World Bank defines corruption as "the abuse of public office for private gain. Corruption is every transaction between actors from the private and public sectors through collective utilities that are illegally transformed into private gains". It is to be noted that corruption is not only an issue of public administration, but it is prevalent in the private sector. Klitgaard (1998) defines it by way of the following equation: C=M+D-A-S where C=Corruption, M= Monopoly, D= Discretion, A= Accountability, and, lastly, S denotes Public sector salaries. In other words, the degree of corruption relies on the amount of monopoly power and unrestricted supremacy that official's exercise and the extent to which they are held responsible for their actions. The UN's Dictionary of Social Science explains this notion in the following words: "Corruption in public life is the use of public power for private profit, preference of prestige or for the benefit of a group or class, in a way that constitutes a breach of law or standards of high moral conduct."

In light of the facts mentioned above, from a broader perspective, corruption can be defined as the exploitation of public resources and avoidance of public laws that result in unfair personal gains, decrease the economic growth rate, and encourage greater income inequality. This paper is concerned with corruption in the public sector governance and its impact on the economy of OECD and emerging Asian economies. For this reason, the scope of defining corruption from various perspectives is limited in this study.

Evidence suggests that corruption hinders economic development by inhibiting investment, economic growth, and efficiency in fiscal policies. For instance, Tanzi and Davoodi used cross-country data to analyze the various channels of corruption, which include; Lower government revenues, decreased quality of public infrastructure, less expenditure allotted to maintenance and operations, and a reduction in the productivity of public investment. They hold that corruption results in higher investment in subordinate productive regions. Due to corruption, officials are more likely to favor investment projects that pay a higher bribe than economic output. Inevitably, this results in a poor allocation of resources. (Tanzi & Davoodi, 1997)

Venard investigated economic development concerning institutional quality and corruption from a different perspective. Cross-national data obtained by the World Bank has been studied with the help of the Partial Least Squares structural equation. Wealth growth was taken as a measure of economic development instead of GDP per capita growth. It was found that both corruption and bad institutional quality harm economic development (Venard, 2013).

RESEARCH METHOD

2.1. Theoretical Framework

The neoclassical framework of the Solow Growth Model inspires this study's theoretical framework. This study will attempt to verify corruption's relationship with economic growth in both OECD and Emerging Asian Countries.

The Solow model has four main components: capital stock, output, labor, and knowledge (which reflect the degree of technological development). These four variables help explain the economic growth path of a nation (see figure 1). Since technological progress, savings rate, and population growth are exogenous variables in this model, labor and capital become the two production inputs, each marginal price (Mankiw, N. Gregory, et al. 1995). We get the following augmented neoclassical production function in Cobb-Douglas form at time (t) with these conditions:

$$Y(t) = F(K(t), A(t)L(t) \quad = K(t)^{\alpha} (A(t)L(t))^{1-\alpha} \quad \text{where, } 0 < \alpha < 1 \qquad (1)$$

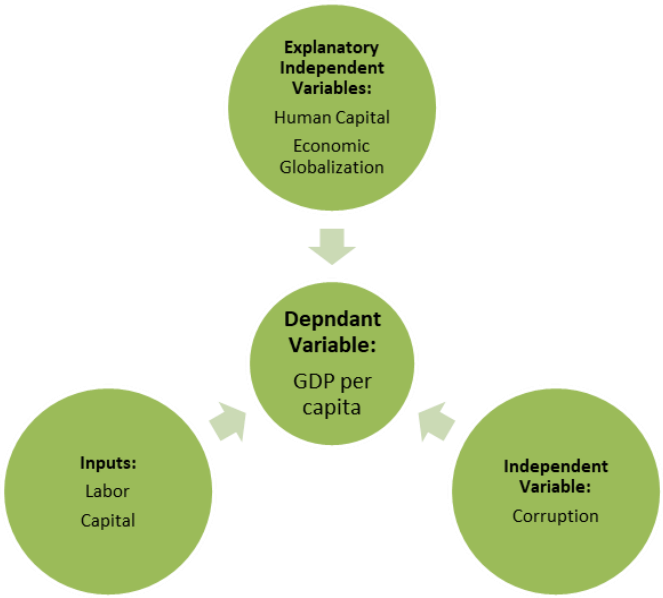

Fig 1. Conceptual framework of Solow Growth Model

2.2. Data and Variables

The annual aggregate time-series data for OECD countries and emerging Asian Economies is used, which consists of 25 observations for the period of 1996 to 2020 (list of countries in provided in the Appendix table A1 and A2). Even though the

sample size is comparatively small, the most recent data is used in this paper. Real GDP per capita, used as a proxy for income per capita, depicts the value of all final goods and services produced within the geographical area for one year divided by the consumer price index.

Capital stock refers to the capital input per worker in the economy. In short, it is the amount of capital per unit of labor, which then allows for the interpretation of capital accumulation. The capital stock is an indicator extracted from the Penn World Table. In addition, the Economic Globalization Index (EGI) is chosen as an indicator of globalization and trade openness, and the Human Capital Index is selected as an indicator of human capital. HCI, developed by the World Bank, quantifies the contribution of education and health to the productivity of the next generation of workers. Investing in human capital is crucial for sustainable growth and poverty reduction. Increasing their ability, skills, knowledge, and health allows individuals to become more productive and innovative. HCI, expressed as a score ranging from zero to one provides the national and sex-disaggregated data for each country. Furthermore, the Economic Globalization Index comprises economic, political, and social interdependence indicators. A globalization index is developed for each country in a respective year, which can assume values between 0 and 100. The higher the index value will be, the greater the interdependence of the country with the rest of the world.

The Bureau of Labor Statistics defines Labor Force as the number of employed people and the unemployed who are looking for work. The total labor force from the world development indicators is used to indicate the growth of labor in the country.

This study uses Corruption Index from the International Country Risk Guide, which provides a global clientele with political, economic, and financial risk ratings and forecasts for its universe of 141 developed, emerging, and frontier markets. The Political Risk index is based on 100 points, Economic Risk on 50 points, and Financial Risk on 50 points. According to the International Country Risk Guide, this corruption index is an estimator of the degree of political corruption in a political system. It is a subjective measure of corruption which ranges from 0 to 6, with 0 being the most corrupt.

2.3. Empirical Framework

2.3.1. Graphical Analysis

Preceding the empirical analysis, studying the graphical analysis allows for a deeper understanding of the direction of the variables and their relationships. The graphs below illustrate the relation between the averaged data of GDP Per Capita, which is the dependent variable, with each of the averaged independent variables for the entire panel of OECD and emerging Asian countries (see Figure 2-6)

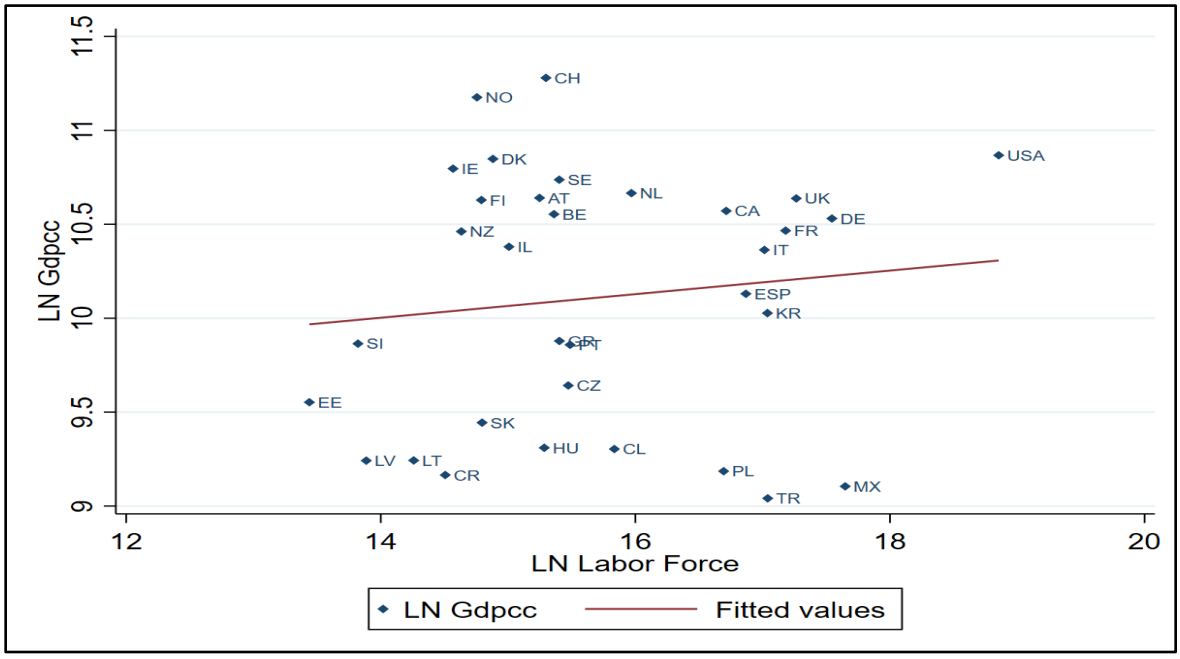

Figure 2: Labor Force against GDP per Capita

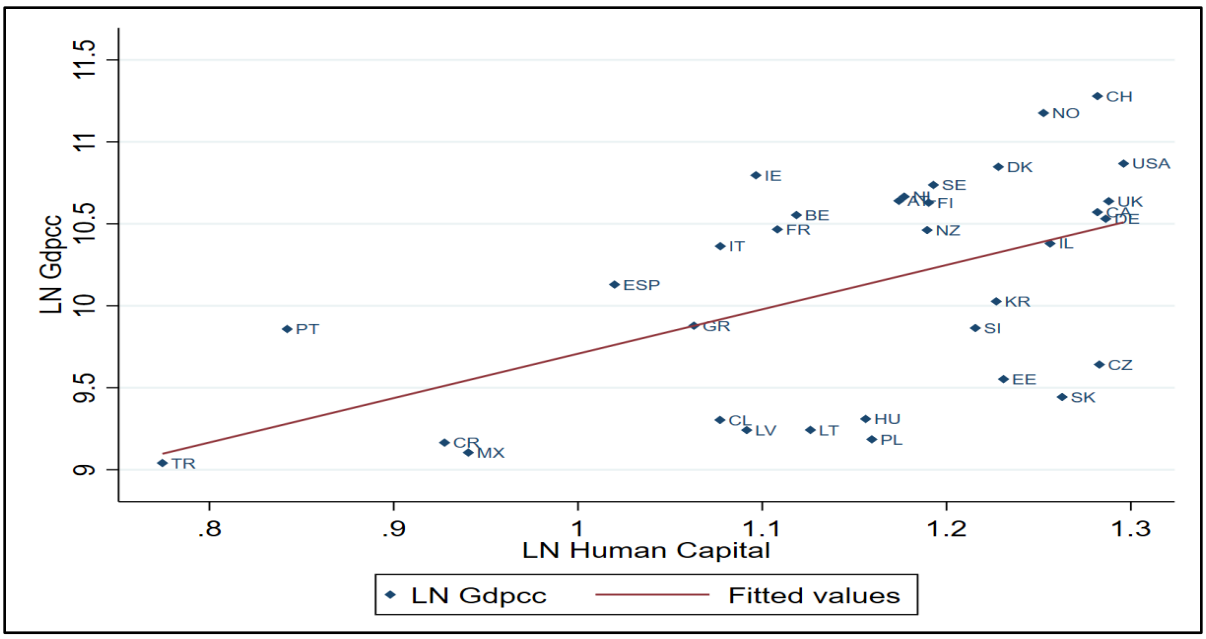

Figure 3: Human Capital against GDP Per Capita

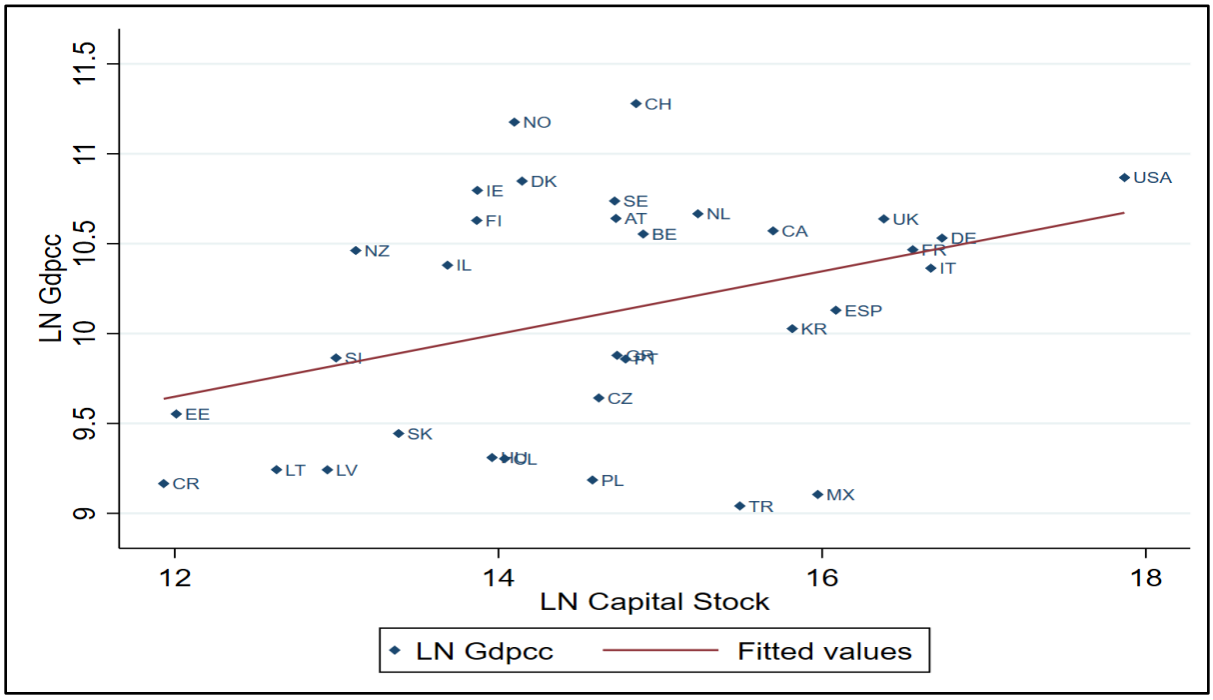

Figure 4: Capital Stock against GDP per Capita

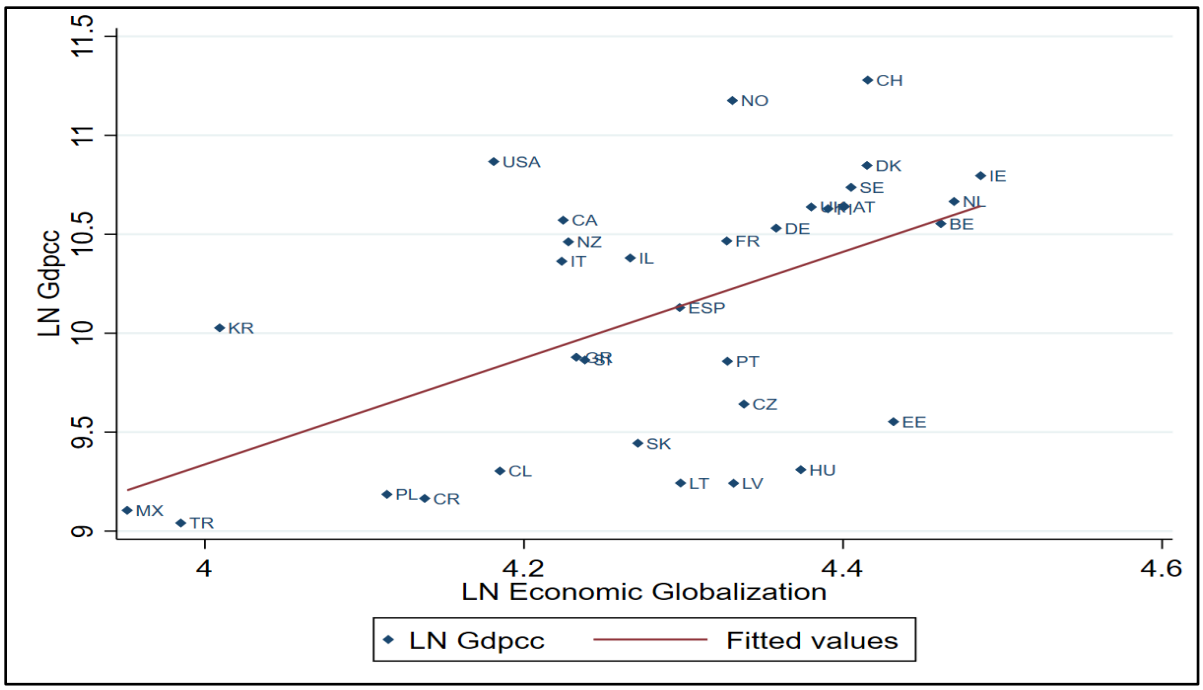

Figure 5: Economic Globalization against GDP Per Capita

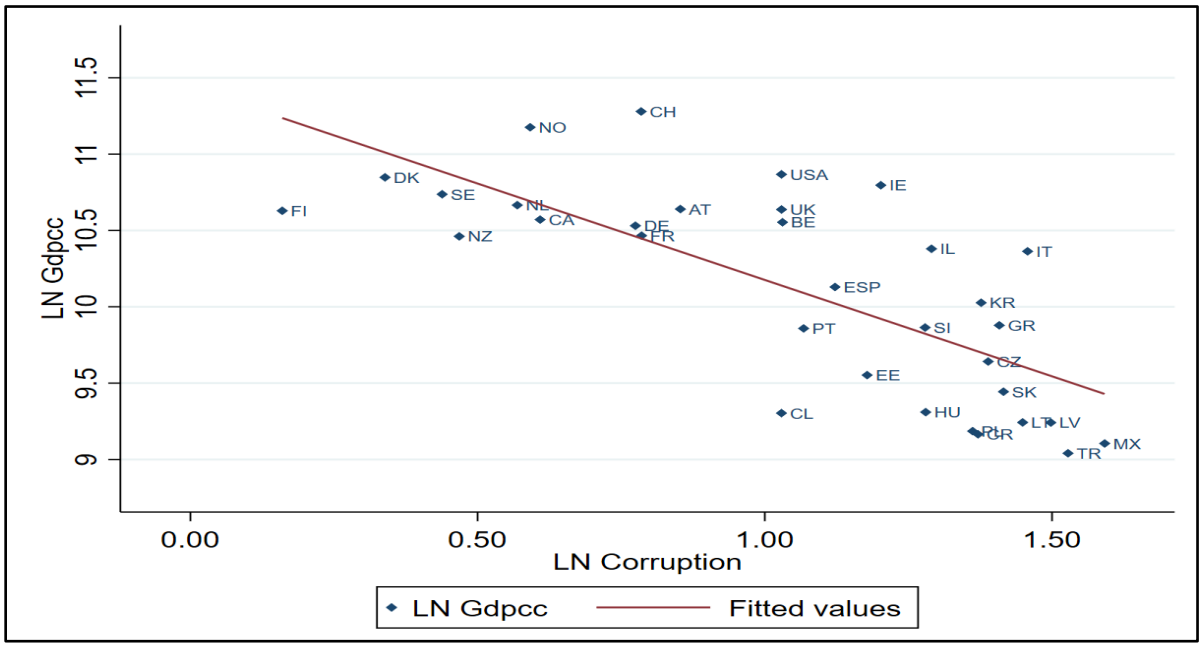

Figure 6: Corruption against GDP Per Capita

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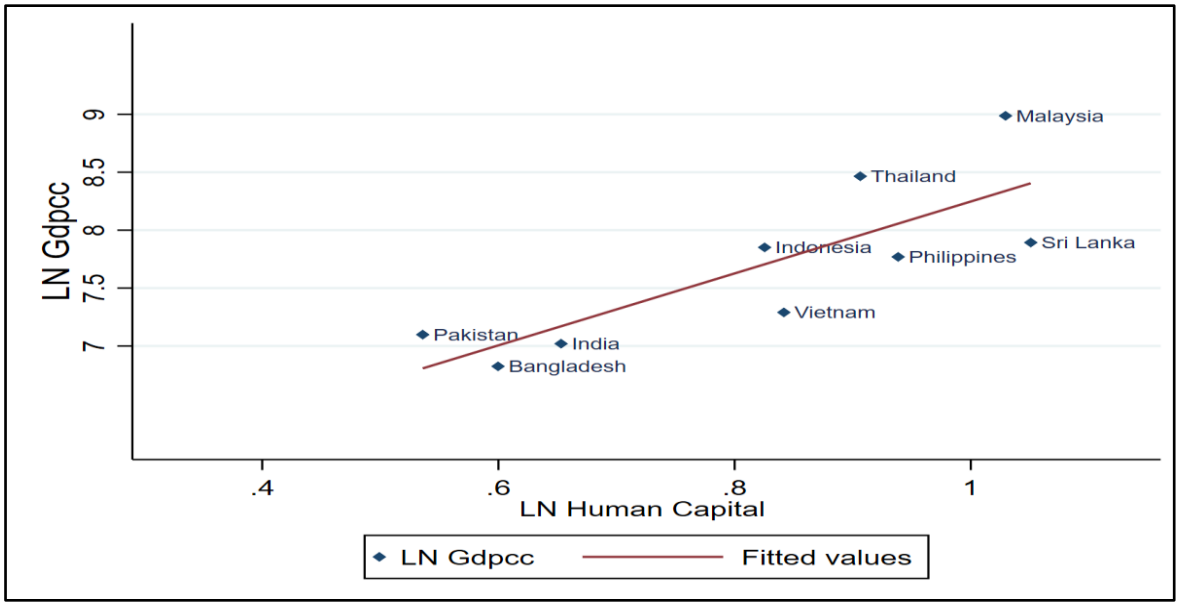

Figure 7: Human Capital against GDP Per Capita

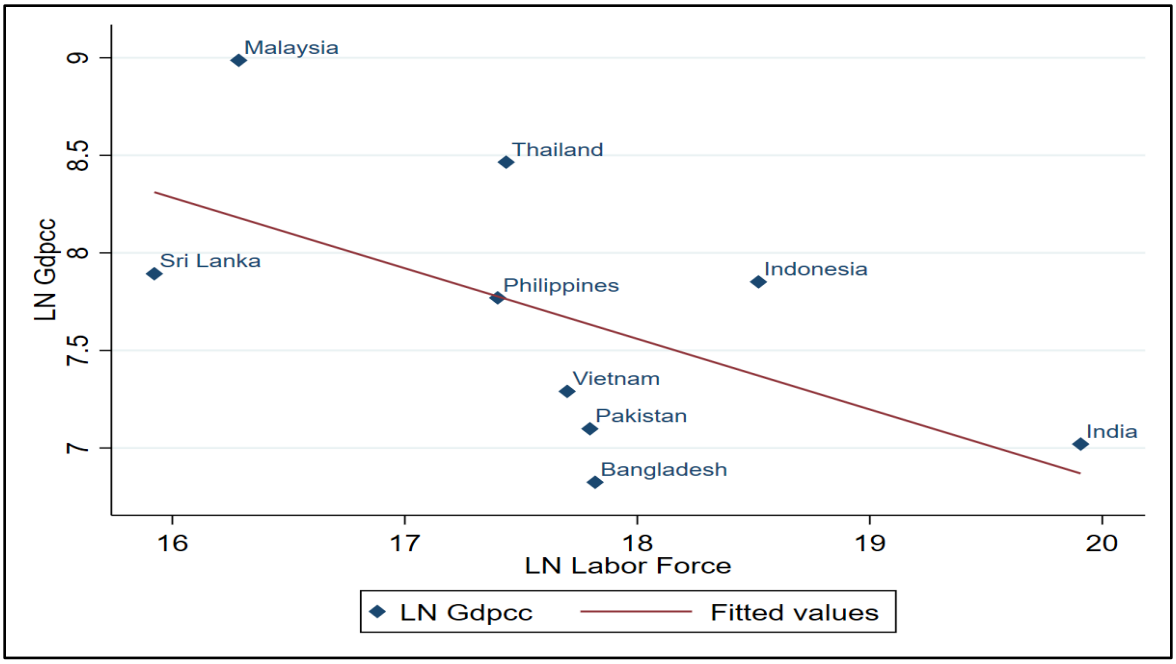

Figure 8: Labor Force against GDP Per Capita

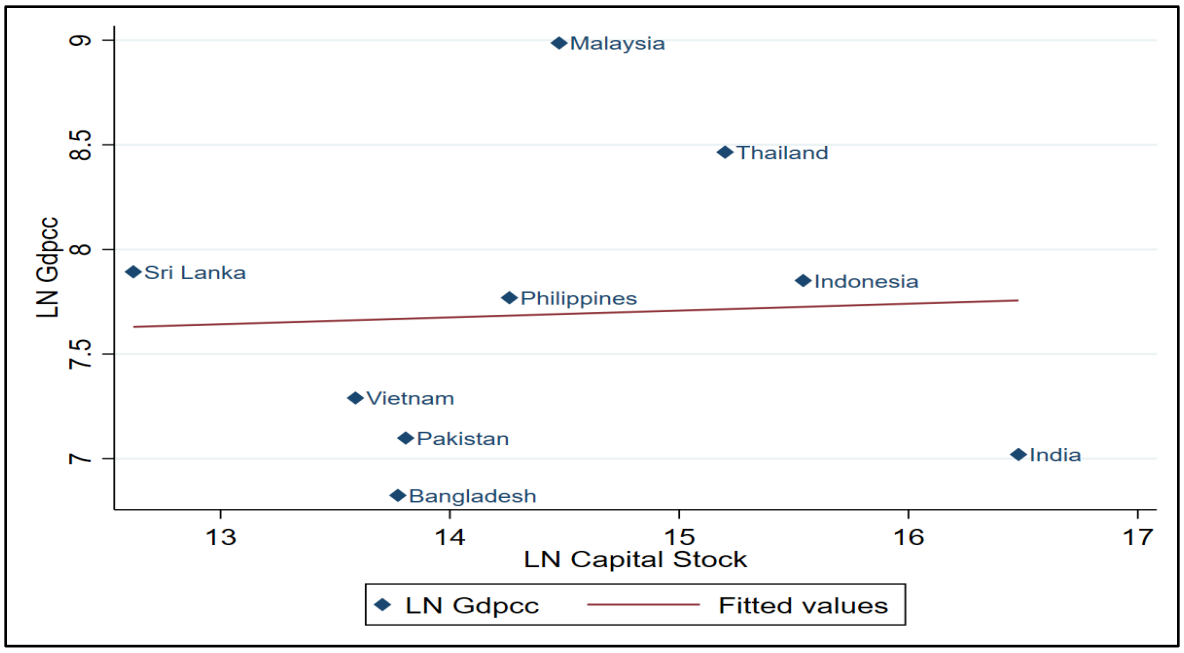

Figure 9: Capital Stock against GDP Per Capita

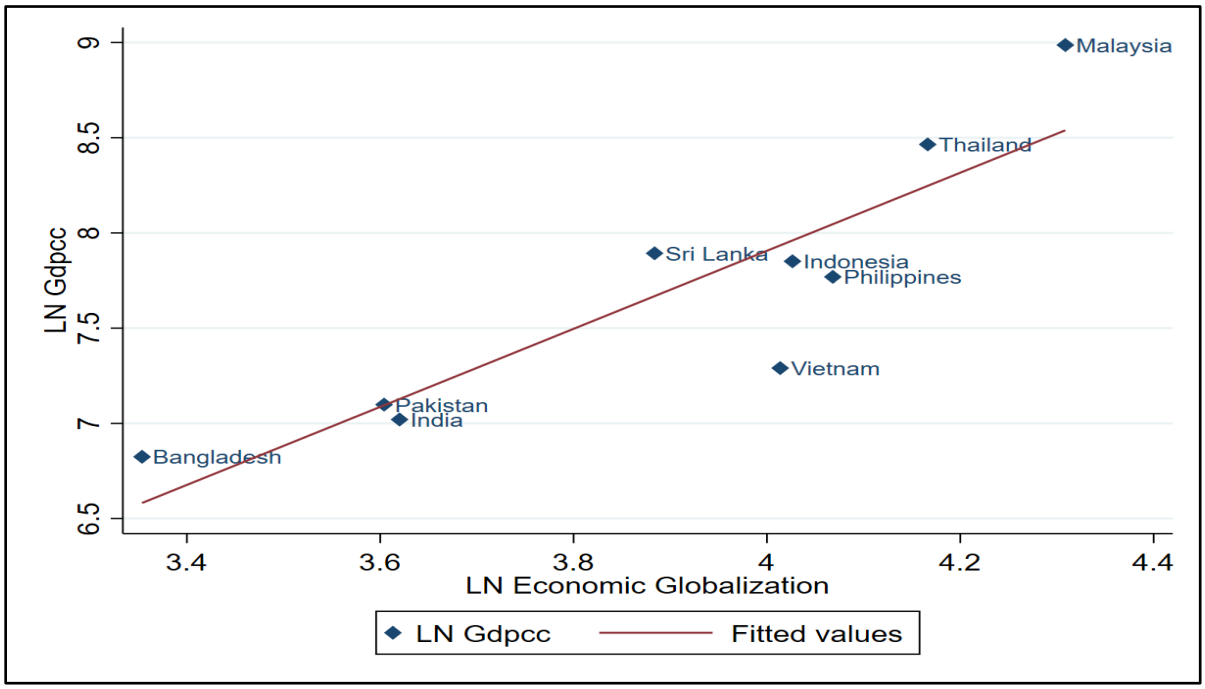

Figure 10: Economic Globalization against GDP Per capita

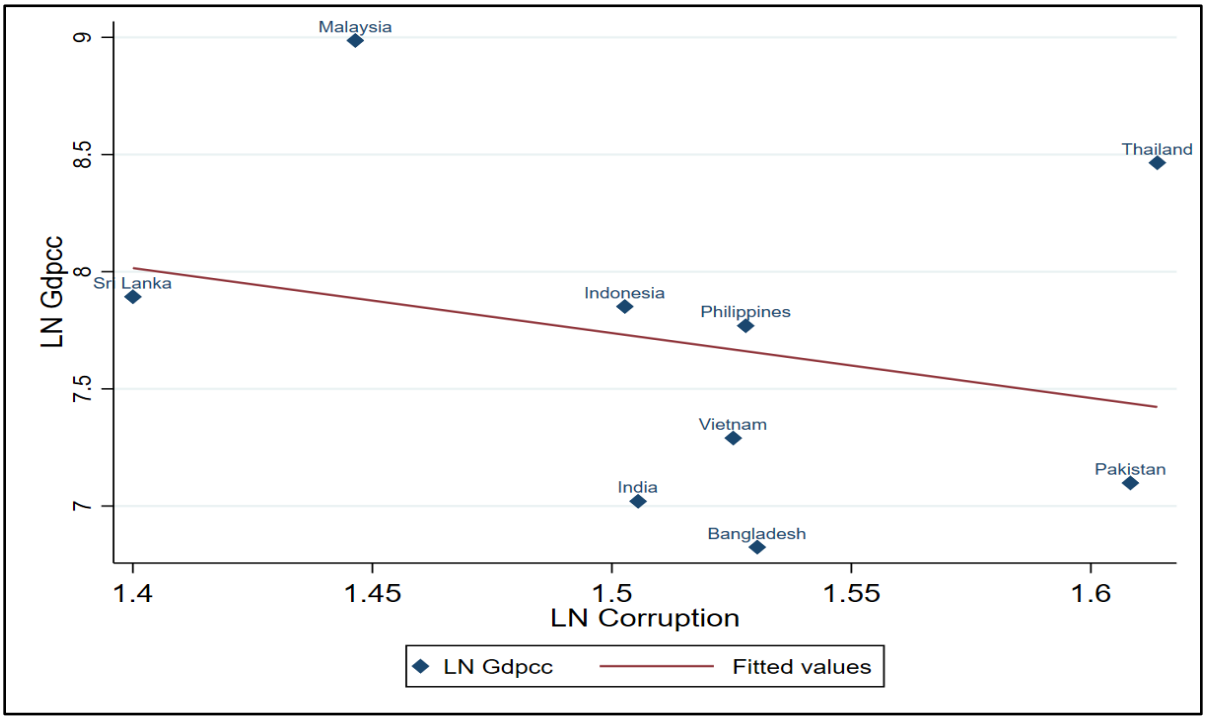

Figure 11: Corruption against GDP Per Capita

In the figures (2-6), the explanatory variables and inputs illustrate a positive trend with economic development. This implies the underlying theory of human capital; labor force, capital accumulation, and labor force have a positive impact on GDP per capita. In addition, corruption shows a negative relation with GDP per capita, emphasizing that in the OECD countries, it has a negative impact on growth

The figures (7-11) above illustrate the line of best fit of each variable against GDP per Capita. As shown, labor force and corruption show a negative trend with GDP per Capita, whereas the rest of the variables illustrate a positive trend.

RESULTS AND DISCUSSION

4.1. Unit Root Tests

This research uses the Auto-Regressive Distributed Lag (ARDL) Bounds Test methodology. The bounds testing approach has certain econometric advantages compared to other co-integration procedures. According to Pesaran (1997), the ARDL procedure yields precise estimates of long-run parameters and valid t-statistics despite different orders of integration. Regardless of whether the underlying regressors are completely I(0), I(1), or mutually integrated (see table 1 and 2).

The unit root test was initially carried out to check whether the data was non-stationary. The null hypothesis states the presence of a unit root, whereby the alternative hypothesis states that the data is stationary. Due to a unit root problem, the ARDL test was carried out.

Table 1: Levin- Lin- Chu Unit Root Test Results for data of Emerging Asian Countries

	At Level		At first difference	
Variable	**Statistic**	**Probability**	**Statistic**	**Probability**
Ln Economic Globalization	-8.07366	0.0000	**-**	-
Ln GDPPC	-7.02791	0.0000	-	**-**
Ln Human Capital	9.63247	1.0000	-8.21126	0.0000
Ln Corruption	-5.67993	0.0000	**-**	-
Ln Capital Stock	2.56474	0.9948	-11.2693	0.0000
Ln Labor Force	-4.30329	0.0000	-	**-**

Table 2: Levin- Lin- Chu Unit Root Test Results for data of OECD Countries

	At Level		At first difference	
Variable	**Statistic**	**Probability**	**Statistic**	**Probability**
Ln Economic Globalization	-2.44666	0.0072	-	-
Ln GDPPC	-1.16778	0.1214	-3.70341	0.0001
Ln Human Capital	1.57872	0.9428	-4.65919	0.0000
Ln Corruption	-3.59647	0.0002	-	-
Ln Capital Stock	1.33967	0.9098	-4.62514	0.0000
Ln Labor Force	2.50502	0.9939	-4.25439	0.0000

4.2. Regression Analysis Results

ARDL model of OECD countries contains 828 observations of 37 OECD countries with a maximum of 2 dependent lags. The sample was taken from 1996 to 2020. The dependent variable was log of GDP per capita, whereas there were four independent variables which included a log of the labor force, Human Capital, corruption, and Economic Globalization. These log-log model results were obtained from e-views to derive the following analysis below in table 3.

In the OECD model, all the variables are significant in the long run. The coefficient of cointegration in short-run results is negative and significant, emphasizing that the model is converging towards equilibrium and proving that the ARDL model used in this paper is valid.

The results coincide with this paper's hypothesis, which states that corruption is bad for the economy, making it valid. The corruption coefficient is -0.11, which is negative, reflecting a negative relationship with economic growth. For every 1% increase

in corruption, GDP per capita decreases by 0.11 %. This is a consequence of the inefficiency and permanent damage caused by corruption to the economy.

This research then moves to its inputs, including capital stock and labor force. The coefficient of capital stock is positive, showing a direct relationship with GDP per capita. For every 1% increase in capital stock, GDP per capita grows by 0.10 %. The increased investment helps increase a company's production capacity if combined with the right amount of labor. Hence, labor is analyzed next, which has a positive coefficient and highlights another direct relationship. Every 1% increase in labor expands the per income capita by 0.45%. These figures are significantly more than physical capital, proving that technological progress cannot replace some human efforts.

After the inputs, the extended model variables, human capital, and economic globalization results are studied. Human capital is responsible for the productivity level of labor. Its coefficient is 1.21, which is positive and greater than one, depicting increasing scale returns. The results concluded that every 1% increase in human capital helped the GDP per capita flourish by 1.21 %. This significant impact explains the value of human capital building resources like education, health care, etc., for the economy. Countries have been able to lift themselves out of poverty as they improved their nation's human capital (Yu et al., 2022). Economic Globalization's coefficient is 0.82, which is positive and directly relates to the growth of the economy. For every percent increase in economic globalization, GDP per capita grows by 0.82 percent. This highlights that trade is a vital pillar of any economy, and healthy trade agreements can be extremely beneficial for the progress of these OECD countries. Economic globalization allows ease of mobility of labor and resources; meanwhile, an increase in the market size enables the firms to achieve economies of scale.

The ARDL model of emerging Asian countries consists of 207 observations of 9 countries. The maximum dependent lag is 1; meanwhile, the variables are similar to those of OECD countries. The log of GDP per capita is the dependent variable, while the log of the Labor force, Human Capital, Corruption, and Economic Globalization are the four independent variables. The dataset contains time series data for 25 years from 1996 to 2020. The log-log model for emerging Asian countries equates to the following results in table 4.

Table 3: ARDL Model Results of OECD Countries

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Results				
LN_CAPITAL_STOCK	0.10	0.04	2.06	0.03
LN_LABOR_FORCE	0.45	0.06	6.94	0.00
LN_HUMAN_CAPITAL	1.21	0.13	8.81	0.00
LN_CORRUPTION	-0.11	0.02	-5.10	0.00
ECONOMIC_GLOBALIZATION	0.82	0.06	12.66	0.00
COINTIQ (-1)	-0.19	0.03	-5.02	0.00
Short Run Results				
D(LN_CAPITAL_STOCK)	4.24	0.40	10.42	0.00
D(LN_CAPITAL_STOCK(-1))	-3.09	0.43	-7.17	0.00
D(LN_LABOR_FORCE)	0.18	0.08	2.29	0.02
D(LN_LABOR_FORCE(-1))	-0.16	0.11	-1.49	0.13
D(LN_HUMAN_CAPITAL)	-0.54	1.12	-0.48	0.62
D(LN_HUMAN_CAPITAL(-1))	0.43	2.48	0.17	0.86
D(LN_CORRUPTION)	0.05	0.07	0.73	0.46
D(LN_CORRUPTION(-1))	-0.02	0.01	-1.16	0.24
D(ECONOMIC_GLOBALIZATION	0.03	0.05	0.61	0.53
C	-0.52	0.10	-4.86	0.00

In the emerging Asian countries, all the variables except economic globalization are significant in the long run (see table 4). The value of cointegration in the short run is negative and significant means the model is converging towards equilibrium and proves that the ARDL model used in this paper is justified.

In Asian countries, every 1% increase in corruption reduces the GDP per capita by 0.25 %. Corruption is much harder to control in developing countries as it is embedded at the grass-root level due to bad governance.

Physical capital increases the GDP per capita by 0.38% for every one percent increase in capital stock. Developing countries are less reliant on domestic investment because of lower income and savings rates. They usually rely heavily on foreign investment and remittances, but unfortunately, this study found economic globalization's results insignificant in the case of Emerging Asian nations. The second input of production function, labor, positively impacts GDP per capita. Emerging countries have an abundance of labor because of overpopulation and migration from neighboring countries. This is why GDP per capita boosts by 0.67% for every 1 percent increase in labor. If this labor is educated and healthy, productivity rises significantly by 1.54 % for every 1% rise in human capital. This way, the laborers can put in more hours of work, work in technical/ highly skilled roles and increase their earnings which will flow back into the economy in the form of consumption and investment. Hence, human capital is the most effective variable in Asian ARDL model results.

After analyzing every independent variable's impact on economic growth, this research aimed to further distinguish the scale of those impacts between the two sets of countries. This detailed approach will help determine the correct measures required for countries in different datasets based on their size of the impact on economic growth.

Instead of using the same policies in all countries, policymakers can use tailor-made policies to revive their economies.

Corruption negatively affects economic progress in both countries, proving that it is bad for any economy. However, it is visible that it is responsible for damaging the economy more in emerging Asian countries than in developed OECD countries. Each percent of Corruption hurts the economy 2.27 times more in Asian countries than in OECD nations. Corruption is more widespread in the developing world due to the huge informal sector, while it has been normalized and accepted due to weaker state institutions (Pande, 2012). Law and order in these countries are not effective or respected enough compared to developed countries because of many factors, including budgetary constraints, low productivity of government institutions, and delayed unequal justice for different people according to their wealth. (Weingast, 2009)

An ideal scenario for any economy is to operate at the full employment level. If an economy is already operating at full employment level, then an increase in the Labor force can shift the production possibility frontier towards the right. This shift caused an economic boom and increased GDP per capita eventually.

The results of this study for the labor force in both sets of countries agree with these arguments above. An increase in the labor force has a positive effect on economic growth. However, this impact is felt more in emerging Asian countries than in OECD countries. The labor force increases growth by 1.5 times more in Asian countries than in OECD nations. This could be explained by the fact that OECD countries are already operating at a very low margin increase in the labor force, which may not reduce the average marginal cost by a huge proportion.

Meanwhile, developing countries usually rely on labor-intensive industries, whereas the developed economies are more technologically advanced and require fewer work forces.

Investment is a really important component of aggregate demand function as it benefits the economy at the current time and lays a solid foundation for economic growth to increase in the future. This study used capital as a variable for physical capital/investment.

The capital stock also had a positive relationship with economic growth in both datasets in the study. The impact in OECD countries was 0.10 units per every capital growth unit. Asian countries, however, had a higher impact of 0.38 units per every unit of capital growth on economic growth. This shows that capital stock had 3.8 times more influence in emerging economies.

Developing countries usually have a high demand for infrastructure and investment opportunities because of scarce resources. An increase in capital stock is a welcoming sign for the economy as it presents new economic opportunities. Developed countries are better equipped with investment options explaining their relatively little impact than developing countries.

Nations that are open to the world allow mobility of resources in and out of the country and help them grow exponentially. There is high productivity of labor, large markets for domestic producers to achieve economies of scale, and healthy competition from foreign products, all encouraging economic growth.

This study attempted to establish a link between economic globalization and economic development to be more inclusive of all economic growth-related variables. The results, however, were significant only in the case of OECD nations, where economic globalization positively affects development by .82% per every unit of economic globalization. The coefficient was negative in the case of Asian countries; however, due to the p-value being higher than 0.05, the results were insignificant. Developed countries usually have lower average marginal costs due to economies of scale. Due to trade openness, the increased number of cheaper imports can drive domestic industry out of the market in developing countries, causing a massive increase in unemployment levels. This can hurt the economy in the case of developing countries which explains the negative coefficient for economic globalization.

Human Capital is one of the most underrated components of economic growth, which is often ignored. It can complement the input, labor, and capital by efficiently allocating their usage. Education and Health are considered to only benefit individuals, whereas the positive externality of these benefits has an exponential effect on GDP per capita.

Human capital had a positive coefficient in both datasets, indicating a positive relationship with economic growth. However, the interesting aspect of these results was that the value of both coefficients was greater than one. It represents that human capital has a massive impact on economic growth in both scenarios. Asian countries had 1.2 times increased impact, resulting from a lack of good quality education and health institutions in those countries. Developed countries are home to quality institutions enabling the human capital to be increased much more easily.

Table 4: ARDL Model Results of Emerging Asian Countries

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Results				
LN_CAPITAL_STOCK	0.38	0.02	19.57	0.00
LN_LABOR_FORCE	0.68	0.11	6.30	0.00
LN_HUMAN_CAPITAL	1.55	0.13	11.52	0.00
LN_CORRUPTION	-0.25	0.02	-10.48	0.00
ECONOMIC_GLOBALIZATION	-0.00	0.00	-0.41	0.69
COINTIQ (-1)	-0.36	0.14	-2.54	0.01
Short run Results				
D(LN_CAPITAL_STOCK)	0.20	0.15	1.34	0.18
D(LN_CAPITAL_STOCK(-1))	-0.54	0.17	-3.22	0.00
D(LN_LABOR_FORCE)	0.26	0.16	1.54	0.12
D(LN_LABOR_FORCE(-1))	0.39	0.15	2.54	0.01
D(LN_HUMAN_CAPITAL_INDEX)	4.54	2.35	1.93	0.05
D(LN_HUMAN_CAPITAL_INDEX(-1))	1.72	1.06	1.61	0.11
D(ECONOMIC_GLOBALISATION)	-0.00	0.00	-0.41	0.67
D(ECONOMIC_GLOBALISATION(-1))	0.00	0.00	1.93	0.05
D(LN_CORRUPTION)	0.08	0.02	3.17	0.00
D(LN_CORRUPTION(-1))	0.02	0.00	1.70	0.10
C	-3.69	1.27	-2.88	0.00

CONCLUSION

Corruption is a phenomenon that exists in almost all societies of the world in different shapes and sizes. It is embedded so deep in the system that it can sometimes become impossible to eradicate. Governments try to curb corruption to reduce its consequences, but most find little success due to the complex and ingenious methods to hide their fraud. The previous literature had two opposite theories of corruption: one claiming that corruption is beneficial for the economy and the other stating that it is damaging.

This study aimed to empirically deduce corruption's impact on economic growth using an extended Solow growth model, including human capital and economic globalization. Annual time-series data from 1996-2020 was used; this study is the first research to analyze and distinguish these impacts in two different countries. ICRG's corruption index was used as an indicator of corruption.

In contrast, GDP per capita was used as an indicator for economic growth as it is a precise variable incorporating changes in GDP with population changes. ARDL Bounds method model for cointegration was used to test the long-run relationship between corruption and economic growth.

The main hypothesis of this thesis argues that corruption hurts economic growth in OECD and Emerging Asian nations. The ARDL Bounds method test proved a long-run relationship between corruption and economic development and validated GDP's relationship with human capital, economic globalization, capital stock, and labor force.

Corruption affected the economies of both data sets adversely. The Asian economies suffered a loss of 0.25% per every 1% of corruption, while OECD countries had to bear a loss of 0.11 percent per every percent of corruption. These indicated that Asian economies were more prone to corruption losses due to corrupt state institutions and weak law enforcement agencies. These countries need effective reforms starting at the grassroots level to curb corruption. Reduced corruption can ultimately help these economies operate more efficiently and increase growth per capita.

This research also concludes that human capital has a significant impact on GDP per capita for both developing and developed countries. Human capital influences the productivity of labor and increases the efficiency of resource allocation. This creates a multiplier effect because of the positive externalities associated with increase in human capital.

The study also finds economic globalization to have different impacts on OECD and Asian countries. The impact is positive in the case of OECD countries whereas it's negative for Emerging Asian countries. Trade openness can sometimes result in unfair advantages due to migration of high human capital workers towards developed countries with better opportunities.

The results of corruption in this study agree with the previous literature of Mauro (1995), Kaufman (2010), Pulok (2010), Ivanyna, Mourmouras, & Rangazas (2010), and Venard (2013). However, this study clarifies the previous ambiguities by using an extended Solow growth model with explanatory variables like Human Capital and economics together for the first time. It also highlights the different magnitude of impacts in developing and developed countries, so the public officials use suitable tools to fix their economy in both datasets.

POLICY IMPLICATIONS

Anti-corruption is imperative to a state's mission of promoting economic and financial stability and a key element in minimizing disequilibrium in the public sector. As the world economy becomes increasingly globalized, a nation's anti-corruption policies become the focal point for policymakers, since a corrupt country is unable to reap the benefits of economic globalization.

This study emphasizes the importance of Human Capital and Economic Globalization for growth. Especially in the case of developing countries, there needs to be a special focus on the quality of human capital. Therefore, not only the educational but also the health aspect of human capital should be considered. Policies should focus on easy and affordable access to healthcare and educate the youth of a country, effectively taking advantage of the population dividend. The study reconfirms the need for health and education, especially for emerging Asian economies which are lagging OECD countries in terms of growth.

In addition, this paper finds that economic globalization does not impact economic development in emerging Asian economies. This could be due to several reasons. First, globalization crowds out the local and infant industries, which are not strong enough to sustain long term competition. Second, the presence of corruption reduces the benefits from globalization. Therefore, a thorough framework is required which protects the infant industries and allows them to benefit from globalization.

Lastly, corruption should be minimized in every state by way of increasing accountability and transparency in public sector processes.

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APPENDICES

Table A1: Name of the Sampled Countries by Data Sets

OECD	**Emerging Asian**
USA, UK, Turkey, Sweden, Switzerland, Spain, Portugal, Norway, Netherlands, Luxembourg, Italy, Ireland, Iceland, Greece, Germany, France, Denmark, Canada, Belgium, Austria, Slovenia, Slovak Republic, Poland, New Zealand, Mexico, Israel, Korea, Rep., Hungary, Finland, Estonia, Chile, Czech Republic, Latvia, Lithuania, Colombia, Costa Rica	Indonesia, Malaysia, Philippines, Thailand, Vietnam, Bangladesh, India, Pakistan, Sri Lanka

Table A2 : Abbreviations of OECD countries used in graphical analysis

Country	**Abbreviation**	**Country**	**Abbreviation**
United States of America	**USA**	**Ireland**	**IE**
United Kingdom	**UK**	**Iceland**	**IS**
Turkey	**TR**	**Greece**	**GR**
Sweden	**SE**	**Germany**	**DE**
Switzerland	**CH**	**France**	**FR**
Spain	**ES**	**Denmark**	**DK**
Portugal	**PT**	**Canada**	**CA**
Norway	**NO**	**Belgium**	**BE**
Netherlands	**NL**	**Austria**	**AT**
Luxembourg	**LU**	**Slovenia**	**SI**
Italy	**IT**	**Slovak Republic**	**SK**
Poland	**PL**	**Israel**	**IL**
New Zealand	**NZ**	**Korea, Rep.**	**KR**
Mexico	**MX**	**Finland**	**FI**
Estonia	**EE**	**Chile**	**CL**
Czech Republic	**CZ**	**Latvia**	**LV**
Lithuania	**LT**	**Colombia**	**CO**
Costa Rica	**CR**	**Hungary**	**HU**

Table A3: Abbreviations of Emerging Asian countries used in graphical analysis

Country	Abbreviation	Country	Abbreviation
Sri Lanka	**LK**	**Vietnam**	**VN**
Pakistan	**PK**	**Malaysia**	**MY**
India	**IN**	**Philippines**	**PH**
Bangladesh	**BD**	**Thailand**	**TH**
Indonesia	**ID**		

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